

Patent Application Number: 10/077,922

**REMARKS**

Claims 1-111 are pending in the present application. Claims 49 through 111 have been added. Independent claims 49 and 101 include the allowable subject matter of originally submitted dependent claim 6.

**I. Rejection of Claims 1-6 under 35 U.S.C. §103 over Govari in view of Shlomo**

Claims 1-6 have been rejected under 35 U.S.C. §103 as being unpatentable over Govari (US-A-6,223,066) in view of Shlomo (US-A-6,272,371). This rejection of claims 1-6 under 35 U.S.C. §103 over the teachings of Govari in view of Shlomo, and as it also may be applied to newly added claims 49-111, is respectfully traversed.

**A. Arguments with respect to Claims 1-6**

As respectfully submitted above, amended independent claim 1 sets forth a photonic lead system comprising a photonic lead having a distal end, a proximal end, and an optical communication channel between the distal end and the proximal end; a magnetic radiation coil, located in the distal end, to generate an electrical current corresponding to magnetic radiation characteristics of a predetermined nature; and a converter to convert the electrical signal generated by the magnetic radiation coil to an optical signal, the optical signal to be propagated along the optical communication channel from the distal end to the proximal end.

In formulating the present rejection under 35 U.S.C. §103, the Examiner alleges that Govari teaches all of the subject matter of the above claims except a magnetic coil that generates an electrical current corresponding to magnetic radiation. To meet this deficiency in the teachings of Govari, the Examiner proposes to modify Govari with the teachings of Shlomo. The Examiner alleges that Shlomo teaches a magnetic coil that generates an electrical current corresponding to magnetic radiation. From these allegations, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to have such a magnetic coil in the device of Govari in order to detect magnetic radiation. These positions by the Examiner are respectfully traversed in view of the claims as presented above.

As noted above, the Examiner recognizes that Govari teaches to use of a magneto-optical crystal which directly creates an optical signal in response to the presence of magnetic radiation. Govari fails to teach the use of a magnetic coil to generate an electrical current corresponding to

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magnetic radiation because the device taught by Govari relies upon optical communication between a distal end and a proximal end of a probe to convey the positional information of the distal end of the probe.

On the other hand, Shlomo teaches the use of magnetic coil to generate an electrical current in response to magnetic radiation wherein this electrical current is propagated through metal wires to the proximal end of the lead because the device taught by Shlomo relies upon electrical signals to provide the communication between a distal end and a proximal end of a probe needed to convey the positional information of the distal end of the probe.

In contrast the presently claimed invention sets forth a magnetic coil to generate an electrical current corresponding to magnetic radiation and a converter that converts the electrical signal into an optical signal wherein the optical signal propagates from the distal end of the probe to the proximal end via the optical communication channel.

Govari and Shlomo, singly or in combination, fail to teach or suggest a magnetic coil to generate an electrical current corresponding to magnetic radiation and a converter that converts the electrical signal into an optical signal wherein the optical signal propagates from the distal end of the probe to the proximal end via the optical communication channel, as set forth by amended independent claim 1.

Moreover, Govari and Shlomo, singly or in combination, fail to provide any motivation that would suggest or teach one of ordinary skill in the art to replace the magneto-optical crystal with a magnetic coil because Govari teaches the reliance upon a change in the polarization of a light generate at the proximal when it is reflected back from the magneto-optical crystal to convey positional information with respect to the distal end of the probe. Replacing the magneto-optical crystal with a magnetic coil would nullify Govari's reliance upon a change in the polarization of a light generate at the proximal when it is reflected back from the magneto-optical crystal to convey positional information with respect to the distal end of the probe.

Therefore, Govari and Shlomo, singly or in combination, fail to teach or suggest, as set forth in amended independent claim 1, a magnetic coil to generate an electrical current corresponding to magnetic radiation and a converter that converts the electrical signal into an optical signal wherein the optical signal propagates from the distal end of the probe to the proximal end via the optical communication channel.

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With respect to dependent claims 2-6, the Applicants, for the sake of brevity, will not address the reasons supporting patentability for each of these individual dependent claims, as these claims depend directly or indirectly from allowable independent claim 1 for the reasons set forth above. The Applicants reserve the right to address the patentability of each of these dependent claims at a later time, should it be necessary.

**B. Arguments with respect to newly added Claims 49-100**

As respectfully submitted above, newly added independent claim 49 sets forth a photonic lead system comprising a photonic lead having a distal end and a proximal end; a magnetic radiation coil, located in the distal end, to detect characteristics of magnetic radiation of a predetermined nature; an amplifier operatively connected to the magnetic coil; and a control circuit, operatively connected to the amplifier, to produce control signals corresponding to the detected characteristics of the magnetic radiation.

As recognized by the Examiner, Govari and Shlomo, singly or in combination, fail to teach or suggest, as set forth in newly added independent claim 49, an amplifier operatively connected to the magnetic coil and a control circuit, operatively connected to the amplifier, to produce control signals corresponding to the detected characteristics of the magnetic radiation.

With respect to dependent claims 50-100, the Applicants, for the sake of brevity, will not address the reasons supporting patentability for each of these individual dependent claims, as these claims depend directly or indirectly from allowable independent claim 49 for the reasons set forth above. The Applicants reserve the right to address the patentability of each of these dependent claims at a later time, should it be necessary.

**C. Arguments with respect to newly added Claims 101-111**

As respectfully submitted above, newly added independent claim 101 sets forth a probe, having a distal end and a proximal end, comprising a magnetic radiation coil, located in the distal end, to detect characteristics of magnetic radiation of a predetermined nature; an amplifier operatively connected to the magnetic coil; and a control circuit, operatively connected to the amplifier, to produce control signals corresponding to the detected characteristics of the magnetic radiation.

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As recognized by the Examiner, Govari and Shlomo, singly or in combination, fail to teach or suggest, as set forth in newly added independent claim 49, an amplifier operatively connected to the magnetic coil and a control circuit, operatively connected to the amplifier, to produce control signals corresponding to the detected characteristics of the magnetic radiation.

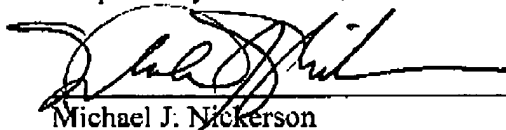
With respect to dependent claims 102-111, the Applicants, for the sake of brevity, will not address the reasons supporting patentability for each of these individual dependent claims, as these claims depend directly or indirectly from allowable independent claim 101 for the reasons set forth above. The Applicants reserve the right to address the patentability of each of these dependent claims at a later time, should it be necessary.

Accordingly, in view of the above amendments and remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §103 over Govari in view of Shlomo.

#### CONCLUSION

Accordingly, in view of all the amendments and reasons set forth above, the Examiner is respectfully requested to reconsider and withdraw all the present rejections. Also, an early indication of allowability is earnestly solicited.

Respectfully submitted,



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